Moving Weapons Platform Simulator
(MWEPS II)

Presented by

Dawn Hoffa

Hoffa_Dawn@Crane.Navy.Mil

(812) 854-4790

Dawn Hoffa

Hoffa_Dawn@Crane.Navy.Mil

(812) 854-4790

NAVSEA

CRANE

Surface Warfare Center Division

16 May 2002

Overview

- Engineering Need
- Training Need
- MWEPS II Description
- Virtual Target Gunnery System (VTAGS)
- Summary

Engineering Need

- Crew Served Platforms
  - Less costly/subjective performance rating is needed

- Stabilized Remote Operated Platforms
  - More testing time is required for more complex platforms
  - Quantitative data is required to determine performance
  - Realistic specifications need to be determined

VIDEO

Training Need

- More "Weapons Free" opportunities are needed
- Training for night situations is required
- Training for various sea state conditions is required

MWEPS II Description

- Provide Engineering Test and Training Platform for Small Arms, Mounts and EO Sensors

  - Motion base platform
  - Computer generated scenario on a large screen
  - Engagement of targets for training
  - Engineering feedback collection
  - Live fire engineering test compliment
  - Scarce training range time supplement
  - Performance model for future acquisition/development creation

MWEPS II Description

Existing MWEPS I Platform
Fleet Training Center, Dam Neck, VA

MWEPS II Description

Visual Presentation Screen

MK V Special Operations Craft

Motion Base Platform

MWEPS II Description
Motion Platform and Software

- 6 Degree of Freedom Motion Platform
- 5000 lb. Payload
- 18 inch stroke length, 30 deg/sec rotational velocity
- Electromechanical Actuators
- Electric Servomotors
- Digital Motor Controls
- Motion Control Electronics Box
- Modified Vendor Motion Platform Software
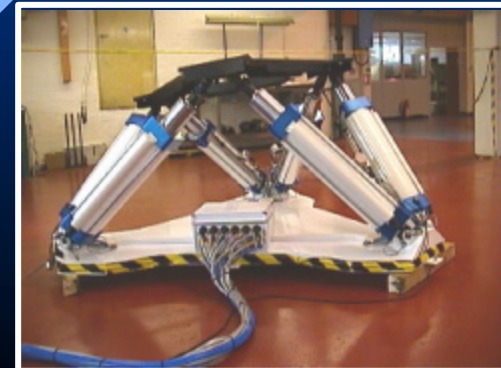
MWEPS II Description
Virtual Environment and Software

- Large Display Screen
- VEGA Marine Software models open ocean scenario

MWEPS II Description
Virtual Targets and Software

- Government generated craft models
- 3 position buoyancy model controls craft motion in response to environment
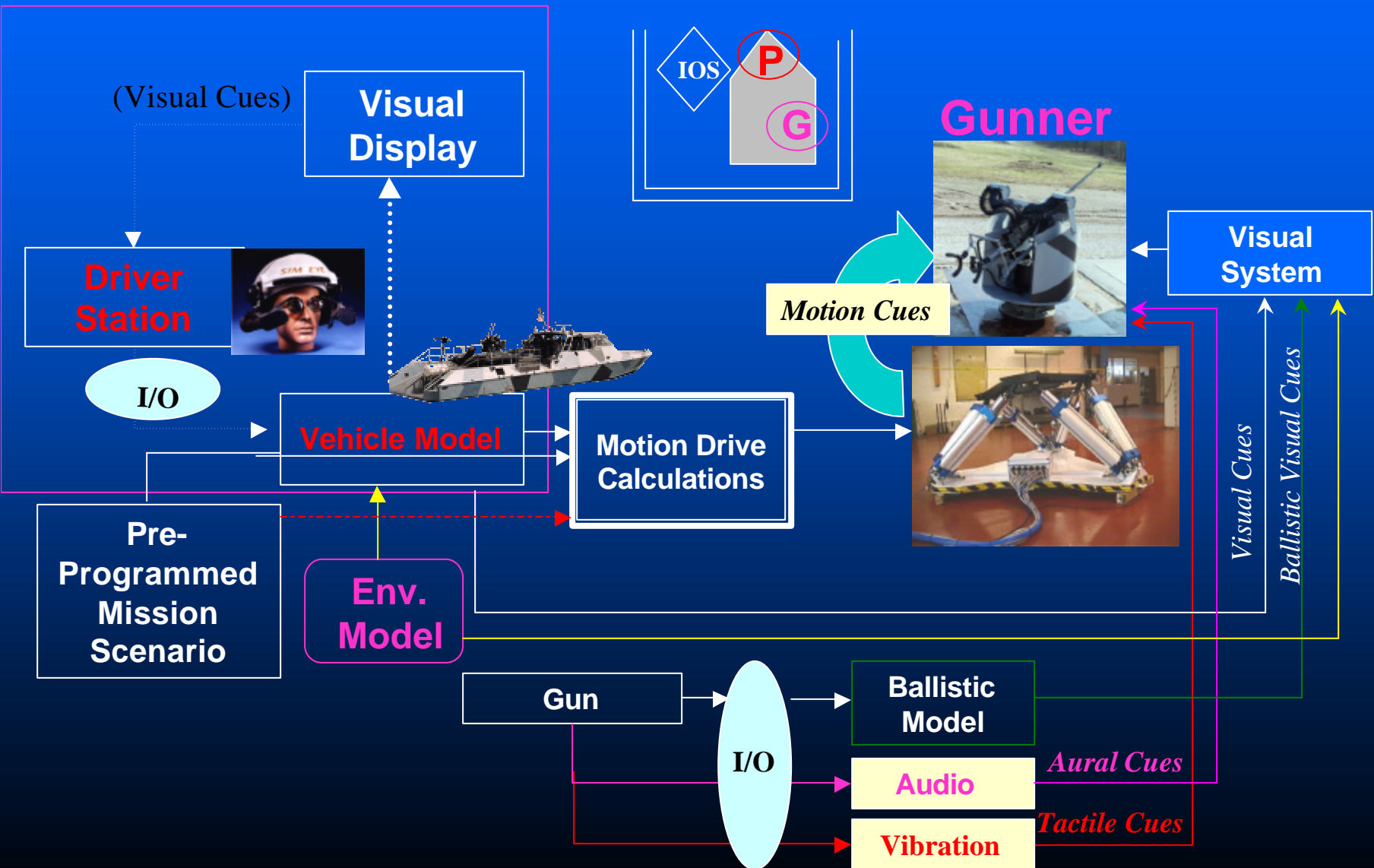
MWEPS II Description
Tracker and Software

- Gun positional infrared locator
- Screen positional optical tracker
- Motion platform positional indicator
- Computer generated bullet trajectory
- Hit or splash model
- Government generated software to determine performance

MWEPS II Description
Repeatable Simulation Scenario

- Open ocean environment
- Single inbound threat
- Engage hostile target
- Evasive maneuver to break aim point
- Reengage hostile target
- Score hit, miss and aiming criteria

MWEPS II Description

MWEPS II Description

Future Development

- **Additional Craft & Weapons**
  - **Rotary Wing - NAVAIR**
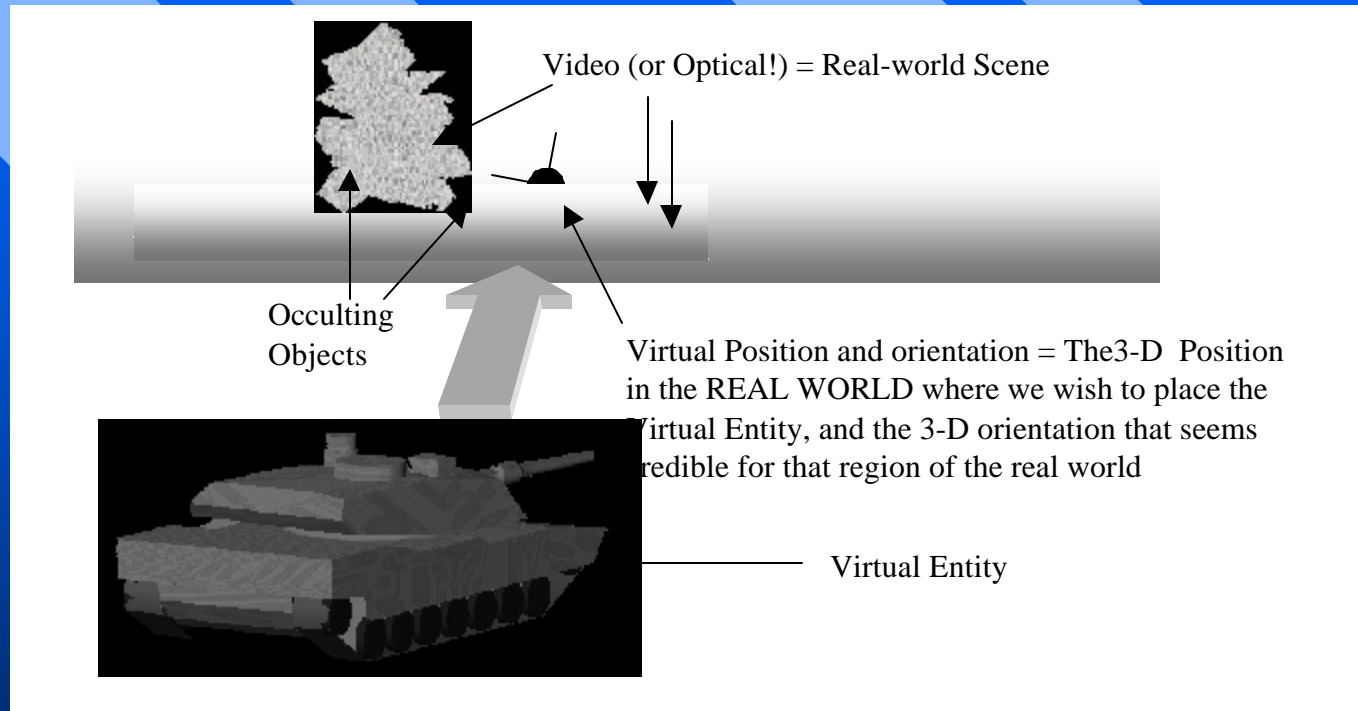 - **Vehicles - USASOC, USMC**
  - **Fleet Assets**

- **Mission Level Scenarios**
  - **Increased Visual Presentation**
  - **Involve More Training Participants**
  - **More Scenarios**
  - **Connectivity to Other Simulators**

Virtual Target Gunnery System (VTAGS)

Video (or Optical!) = Real-world Scene

Occulting Objects

Virtual Position and orientation = The 3-D Position in the REAL WORLD where we wish to place the Virtual Entity, and the 3-D orientation that seems credible for that region of the real world
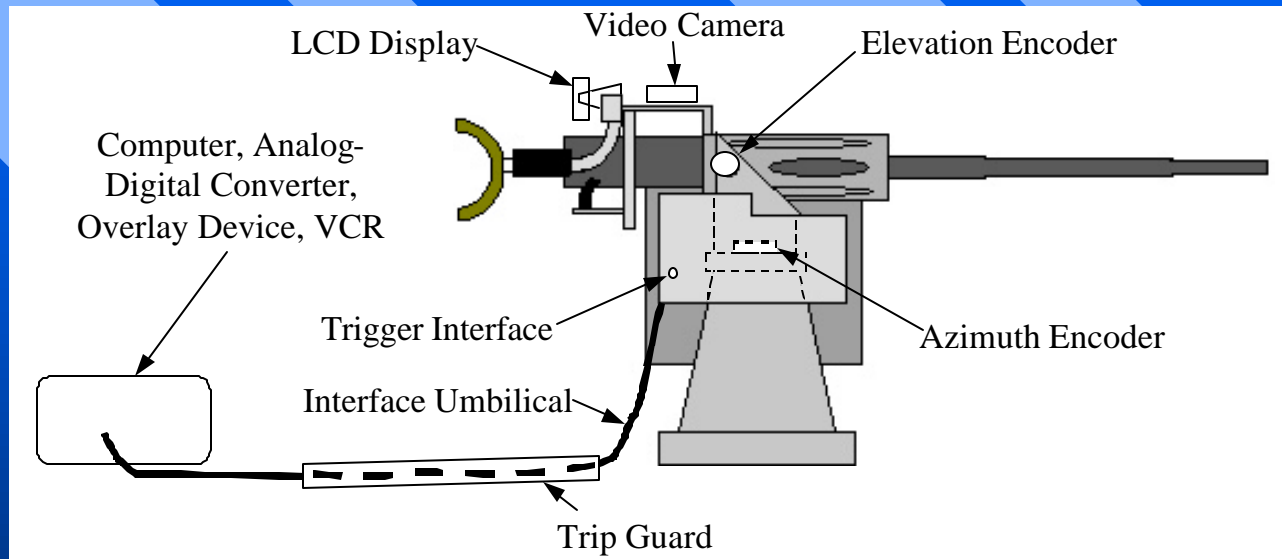
Virtual Entity

- Permits gunner to engage virtual targets superimposed onto view screen

- Can be used w/ live fire or can generate simulated fire

- Gives quantitative data to determine performance

Virtual Target Gunnery System
(VTAGS)

- Easily mountable virtual training aid
- Used with weapon systems presently installed on maritime platforms
- Selectable scenarios that are skill dependant

Summary

- MWEPS II is needed for engineering
- MWEPS II is needed for training
- MWEPS II can fulfill both of these needs on land
- VTAGS can fulfill the training needs at sea and is easily installed on existing maritime platforms